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ABSTRACT

This module, oriented toward middle school students in grades 5-8, includes nine lessons designed to help students synthesize nutritional information and use it to improve their health. In lesson 1, students look at factors that influence food choices. Lesson 2 uses creative expression activities to help students learn about the role of nutrients. They are encouraged to make presentations on nutrients, and in lesson 3, the content of the presentations is used as a basis for a game show. Lesson 4 explores the composition of a balanced diet. Students learn about food groups and complete a food diary. Lesson 5 addresses the consumer aspects of nutrition. It includes an opportunity to learn more about reading food labels and the role of additives. In lesson 6, students evaluate school eating areas and develop a survival guide for eating out nutritiously. Lesson 7 deals with body image and influences of the media. Lesson 8 addresses weight control, emphasizing variety and moderation in diet, and the importance of making permanent changes in eating patterns. In lesson 9, students are asked to synthesize nutrition information and plan a party that features nutritious food. Student information sheets and worksheets are included. The appendix describes some health problems related to nutrition. (LLL)

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CONTEMPORARY HEALTH SERIES

Robert Horton, MS, Series Editor

INTO ADOLESCENCE:

A Menu for Good Health

INTO ADOLESCENCE:

A Menu for Good Health

A Curriculum for Grades 5-8

Susan J. Laing, MS, CHES

Contemporary Health Series
Kathleen Middleton, MS, Series Editor

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EDITOR'S PREFACE
Contemporary Health Series

Health educators and practitioners know that prevention of health problems is far more desirable than treatment. The earlier the knowledge and skill to make healthful decisions are instilled, the greater the chance a healthful lifestyle will be adopted. School is the logical place in our society to provide children, adolescents and young adults the learning opportunities essential to developing the knowledge and skills to choose a healthful life course.

The **Contemporary Health Series** has been designed to provide educators with the curricular tools necessary to challenge students to take personal responsibility for their health. The long-range goals for the **Contemporary Health Series** are as follows:

Cognitive. Students will recognize the function of the existing body of knowledge pertaining to health and family life education.
Affective. Students will experience personal growth in the development of a positive self-concept and the ability to interact with others.
Practice. Students will gain skill in acting on personal decisions about health-related life choices.

Within the **Contemporary Health Series** there are two curricular divisions: Into Adolescence for middle school teachers and Entering Adulthood for high school teachers. The Into Adolescence modules focus on several different health and family life topics. Modules addressing puberty, AIDS, the family, self-esteem, reproduction and birth, sexual abstinence, and drug, alcohol and tobacco education have been developed by skilled author/educators.

Entering Adulthood includes reproduction, birth and contraception, health behavior, communication and self-esteem, AIDS and other STDs, relationships, sexual abstinence, and drug, alcohol and tobacco education.

All the authors are, or have been, classroom teachers with particular expertise in each of the topic areas. They bring a unique combination of theory, content and practice resulting in curricula which weave educational learning theory into lessons appropriate for the developmental age of the student. The module format was chosen to facilitate flexibility as the modules are compatible with each other but may stand alone. Finally, ease of use by the classroom teacher has driven the design. The lessons are comprehensive, key components are clearly identified and masters for all student and teacher materials are provided.

The **Contemporary Health Series** is intended to help teachers address critical health issues in their classrooms. The beneficiaries are their students, our children, and the next generation.

Kathleen Middleton, MS, CHES
Series Editor

INTRODUCTION

The development of good eating habits begins in childhood. People tend to have the same eating patterns as adults that they did as children. Therefore, young people need to obtain the knowledge and decision-making skills to make wise food choices so they can establish healthful eating habits.

In today's society, eating well has never been easier, yet it has never been more difficult. Fresh fruits, vegetables, whole grain products and other foods are widely available. However, there are also numerous items on the market that are nothing more than flavored sugar.

Interestingly, the amount of advertising a product receives is usually inversely proportional to its nutritional value. We need to keep this in mind when teaching about nutrition. Young people are heavily exposed to advertising of highly processed foods.

Nutrition is a complex topic. After all, food is associated with more than just satisfying hunger. Food may be used as a reward, as an indicator of love and as a way to deal with problems. It's an important part of social interactions.

Teachers need to be keenly aware of the relationship of food and eating in the social development of their students. Any good nutrition program must be sensitive to the pressures on young people in regard to food and body image.

If students have gotten the message that good nutrition means they can't eat any of the foods they like, we shouldn't be surprised that they're not too interested in the subject. Therefore, when we talk about nutritional choices, we need to be practical.

We can emphasize moderation rather than restriction. Students may be more likely to drink fruit juices and low-fat milk if we tell them it's okay to have an occasional soft drink. Students are more likely to be willing to eat favorite but less nutritious foods occasionally than to stop eating them altogether. If they feel they aren't being deprived, young people are more likely to include nutritional foods in their diet.

Bingeing is a common reaction to food deprivation. This can lead to serious eating disorders, which are becoming more common among younger adolescents. Moderation and healthful food choices should always be emphasized over weight loss diets for adolescents.

Variety is another key to good nutrition. Students (and all of us) need to eat foods from each of the food groups. The extra, less nutritious foods are less of a problem, if we encourage students to eat a variety of foods.

Young adolescents are making increasing numbers of nutritional decisions. Many of them buy and prepare foods for themselves and their entire families. These youth must be well-informed in order to make good decisions.

So much advertising (some of which is misleading) relates to the nutritional benefits of products that students need a strong knowledge base. Solid decision-making skills help students consider and evaluate the increasing number of new products on the market.

With increased knowledge and improved decision-making skills, students can better distinguish fact from fiction. They can then synthesize nutrition information and use it to improve their health.

Overview

There are many factors in addition to hunger that influence food choices. Students have an opportunity to look at these factors in the first lesson. The lesson includes a worksheet on favorite foods and one on peer pressure. Students also complete a nutritional assessment in this lesson.

Creative expression activities are used in Lesson 2 to help students learn about the role of nutrients. Students are encouraged to make interesting and informative presentations on nutrients. In Lesson 3, the content of the presentations is used as a basis for a game show.

The composition of a balanced diet is explored in Lesson 4. Students learn about food groups and participate in a question-and-answer session on foods and food groups. Food flashcards

are used to suggest more nutritious food choices for some commonly eaten foods. Students also complete a food diary in this lesson.

Because of the number of food choices, the role of the consumer is becoming increasingly difficult. The consumer aspects of nutrition are addressed in Lesson 5. Students have an opportunity to learn more about reading food labels and the role of additives.

In Lesson 6, students evaluate school eating areas and develop a survival guide for eating out nutritiously.

Students consider body image in Lesson 7. They are reminded that there is a wide range of normal heights and weights. Media influences on body image are also considered.

Weight control is addressed in Lesson 8. It is important to recognize that many of the students in your classes may have tried some type of diet plan, whether or not they needed to lose weight. This lesson emphasizes variety and moderation in diet and the importance of making permanent changes in eating patterns.

In the final lesson, students are asked to synthesize nutrition information and plan a party that features nutritious food. Students also brainstorm the major things they learned in the module.

Objectives

Lesson 1	*Food Factors*	■ Students will be able to analyze positive and negative factors that influence food choices.
Lesson 2	*You and Your Nutrition*	■ Students will be able to describe the importance of a specific nutrient.
Lesson 3	*What Do You Know?*	■ Students will be able to explain the function of the various nutrients.
Lesson 4	*Balancing the Choices*	■ Students will be able to identify foods that contribute to a balanced diet.
Lesson 5	*Consuming Concerns*	■ Students will be able to describe how to use the information on food labels to make nutrition decisions.
Lesson 6	*Eating Out*	■ Students will be able to evaluate nutritional options when eating in restaurants.

Lesson 7	*Who Am I?*	■ Students will be able to explain that the wide range of normal body sizes and shapes is not always portrayed in the media.
Lesson 8	*Which Weigh Shcuid I Go?*	■ Students will be able to differentiate fact from fiction regarding weight control information.
Lesson 9	*A Good Nutrition Party*	■ Students will be able to synthesize nutritional information for party planning.

Time

The time indicated for each lesson is an approximate measure, based on a 45-50 minute class period. The actual time required to complete all activities in a given lesson will vary, depending on student interest and ability. Lessons that will probably require more than one class period to complete are indicated.

Instructional Strategies

This module incorporates a variety of instructional strategies to develop and maintain student motivation and interest at peak levels. Some strategies are traditional, while others are more interactive. The specific strategies used in each lesson are clearly identified. An alphabetical list of instructional strategies and their descriptions follows:

Brainstorming
Case Studies
Class Discussion
Cooperative Learning Groups
Creative Expression
Games
Oral Presentation
Overhead Transparencies
Teacher Lecture
Worksheets

Brainstorming

Brainstorming is used to stimulate discussion of an issue or topic. Students are asked to give their ideas and opinions without comment or judgment from the teacher or other students. Ideas can be listed on the chalkboard, on butcher paper or newsprint, or on a transparency. Brainstorming should continue until all ideas have been exhausted or a predetermined time limit has been reached.

Case Studies

Case studies are written histories of a problem or situation that students read, discuss and analyze. This is a good way to encourage student involvement and to center discussion on practical issues.

Class Discussion

A class discussion led by the teacher is one of the most valuable strategies used in education.

It can be used to initiate, amplify or summarize a lesson. Most of the lessons in this module include some form of class discussion.

Cooperative Learning Groups

Cooperative learning is one of the most common and effective strategies used in this module. Students work in small groups to share information, analyze ideas or solve problems. This strategy is highly recommended for middle school students.

The size of the groups depends on the nature of the lesson and the make-up of the class. Groups work best with two to six members.

Group structure will affect the success of the lessons. Groups can be formed by student choice, random selection or a more formal, teacher-influenced process. Groups seem to function best when they represent the variety and balance found in the classroom. Groups also work better when each student has a responsibility within the group (reader, recorder, timer, reporter, etc.).

While groups are working on their tasks, the teacher should move from group to group, answering questions and dealing with any problems that arise. At the conclusion of the group process, some closure should take place.

Creative Expression

By asking students to write short stories or poems or make drawings or collages about topics they are studying, you can integrate language arts, fine arts and personal experience into a lesson. This technique can be used as a follow-up to most lessons.

Games

Games provide an opportunity for learning to take place in a different environment. Students have the opportunity to participate in games in some of the lessons.

Oral Presentation

Students sometimes present information orally to the rest of the class. Such presentations may be done by individual students or by groups. Students enjoy learning and hearing from each other, and the experience stimulates positive interaction.

Overhead Transparencies

Overhead transparencies offer an effective, highly visible way to present information and graphic examples. Most of these lessons provide teacher resources that can be used as transparencies.

Teacher Lecture

A traditional teacher lecture disseminates information directly from the teacher to students. In some lessons, this approach is the best way to provide information. Generally, this method is combined with other methods to assure high-level motivation and learning.

Worksheets

Most lessons in this module include worksheets. Students may be asked to complete the worksheets individually or in cooperative learning groups. Some worksheets include an activity to be completed outside of class. Completed worksheets should generally be reviewed with the whole class to provide relevant and timely feedback.

Teacher Responsibilities

As with other sensitive topics, the teaching of this module must be approached carefully. Teachers must understand the maturity level of individual students and be able to adjust lesson activities and content accordingly. Teachers should make efforts to involve students' family members at every opportunity.

The classroom atmosphere is critical to the success of teaching a curriculum on nutrition. Teachers can help provide the appropriate atmosphere by establishing supportive classroom conditions which are essential to the development of a sense of security, identity, belonging, purpose and personal competence.

Groundrules should be established to help provide a comfortable, positive and secure classroom environment. Students can participate in formulating class groundrules if you choose. Some suggestions for groundrules include the following:

- Treat each other with respect and courtesy.
- Listen carefully to others.
- Allow others to speak without interruption.
- Provide equal time for all students to share their thoughts.
- Be supportive of others. No put-downs are allowed.
- Students have the right to pass in any discussion or activity that involves personal opinions, feelings or experiences.

Evaluative Methods

Each lesson provides the teacher with one or more methods for evaluating student performance on stated objectives. The methods are listed following the procedure section of each lesson. The evaluation methods serve as tools to assess students' participation and cognitive learning from each lesson.

Follow-Up/Extension Activities

Follow-up/extension activities are included in some of the lessons. These activities provide additional learning opportunities and may serve as a link between school and home.

LESSON
1

FOOD FACTORS

Objective

Students will be able to analyze positive and negative factors that influence food choices.

Time

One class period.

Overview

If we ate only when hungry and only enough to satisfy our hunger, none of us would be heavy or thin, and food would not be very important to us. However, we eat for a variety of reasons in addition to satisfying our hunger. Eating is a physical, mental, emotional, social and economic experience.

In this lesson, students use a worksheet to help them identify and chart the factors that influence their food choices. They then work in cooperative learning groups to decide if these factors are positive or negative. As homework, students complete a nutritional survey that assesses their eating habits.

Instructional Strategies

Brainstorming, case studies, class discussion, cooperative learning groups, worksheets.

Teacher Materials and Preparation

HAVE:

✓ Chalk and chalkboard.
✓ Overhead projector.

COPY:

✓ **Favorite Foods** worksheet, one for each student.
✓ **Just One Bite** worksheet, one for each student.
✓ **Why I Eat It** worksheet, one for each student.
✓ **Nutritional Survey** worksheet, one for each student.

MAKE:

✓ Transparency of **Making Food Choices**.

Procedure

■ Ask students what things come to mind when they think of food. List their responses on the board. Have students identify general categories for the items listed (fun, nutrition, survival, etc.). Ask students why we associate food with things other than survival.

■ Tell students that food choices are influenced by a variety of factors. Show students the **Making Food Choices** transparency, and discuss how each factor relates to food choices.

■ Distribute the **Favorite Foods** worksheet. Tell students to list two of their favorite foods for each meal and for snacks on the worksheet. Then tell students to fill in the chart to indicate how each factor influences that food choice.

Leave the **Making Food Choices** transparency up for students to refer to as they complete the worksheet.

■ Divide the class into cooperative learning groups of four to six students. Ask students to work with their groups to review the responses on the worksheets. Tell groups to rank the importance of the factors that influence their decisions regarding food.

Ask students to brainstorm with their groups how each of these factors may be a positive or negative influence on their food choices.

■ Distribute the **Just One Bite** worksheet. Ask for a volunteer to read it to the class. Ask students the following questions:

- What influenced Jennifer's behavior?
- What similar situations have you experienced?
- What are other ways that Jennifer might have reacted?

If time allows, have students roleplay other scenarios related to food choices.

Summarize the activity by telling students that many factors influence our decisions regarding food. Some of these influences may be positive, while others may be negative. We need to be aware of these factors and how they influence our food choices.

Remind students that the choices they make regarding food are theirs—not someone else's.

■ Distribute the **Why I Eat It** worksheet. Tell students to list six to ten foods they eat regularly in the first column. Tell students to explain why they choose these foods in the next column.

Evaluation

Assess student responses on the **Why I Eat It** worksheet for the ability to analyze factors that influence their food choices.

Ask students to write a short paragraph listing factors that influence their food choices, whether these factors are positive or negative influences, and what changes (if any) they might make as a result of this lesson.

Homework

Distribute the **Nutritional Survey** worksheet. Tell students that the survey can help indicate whether their nutritional choices are more positive or negative, but that it is not absolute fact.

Ask students to complete the worksheet and figure their scores as homework. Tell students that this is a private activity to increase

their awareness of their eating habits. They do not have to share their responses with anyone.

Follow-Up/ Extension

Assign several students to make a list of the favorite foods of the class to share with the group.

Assign several students to develop a list of factors that might indicate whether a food is a healthy choice. The dietary guidelines from the U.S. Department of Health and Human Services may provide some assistance. The guidelines include:

- Eat a variety of foods.
- Maintain healthy weight.
- Choose a diet low in fat, saturated fat and cholesterol.
- Choose a diet with plenty of vegetables, fruits and grain products.
- Use sugars only in moderation.
- Use salt and sodium only in moderation.

Have students review the list of the class's favorite foods and use the factors they developed to evaluate how healthy the choices are.

TEACHER

Making Food Choices

Frequency
How often do you eat the food?

Introduction
Where did you first eat the food?

Length of Time
How long have you been eating the food?

Advertising
Is the food advertised? Where?

Ethnic Origin
Is it considered an ethnic food?

Nutritional Value
Is this a healthy (+) or not-so-healthy (-) food?

STUDENT

Favorite Foods

Directions: In the chart below, list your favorite foods for breakfast, lunch, dinner and snacks. Then fill in the chart to indicate how each factor in the first column influences each food choice. One breakfast food has been done as an example.

Meal	Favorite Food	Favorite Food
Breakfast	***Cheerios***	
Frequency	***5 times a week***	
Introduction	***at home—Mom***	
Length of Time	***8 years***	
Advertising	***on TV***	
Ethnic Origin	***None***	
Nutritional Value (+ or -)	+	
Lunch		
Frequency		
Introduction		
Length of Time		
Advertising		
Ethnic Origin		
Nutritional Value (+ or -)		
Dinner		
Frequency		
Introduction		
Length of Time		
Advertising		
Ethnic Origin		
Nutritional Value (+ or -)		
Snacks		
Frequency		
Introduction		
Length of Time		
Advertising		
Ethnic Origin		
Nutritional Value (+ or -)		

STUDENT

Just One Bite

Jennifer and Maria stopped by the mall after school. Jennifer was looking for a T-shirt to go with her new pair of jeans. Maria wasn't shopping for anything; she just went along to help Jennifer.

The girls spent about two hours at the mall. Maria was getting tired and hungry.

"Jennifer, I think you've tried on every T-shirt in the mall," Maria said. "Let's stop at Fast Freddy's before we leave and get something to eat."

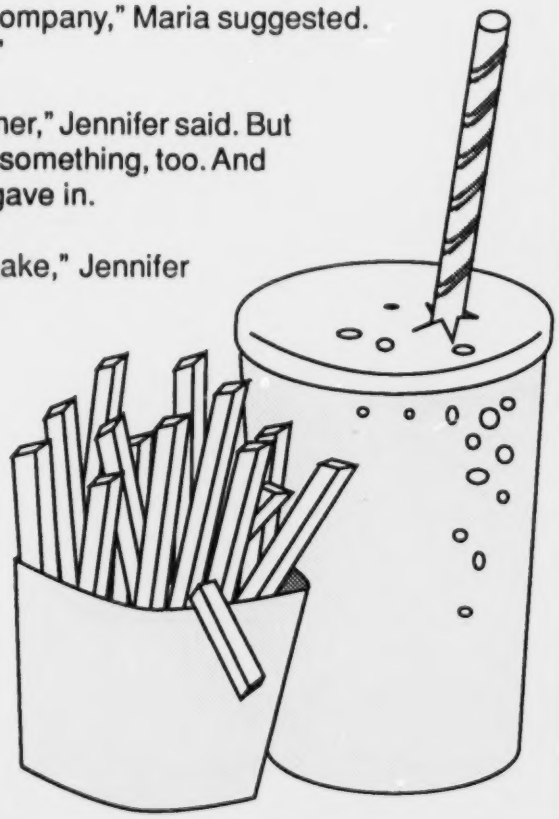
"I'm really not hungry," Jennifer said, "but I'll go with you to keep you company."

At the restaurant, Maria ordered french fries and a soda. Jennifer realized she really was hungry because it was almost dinner time, but she didn't want to order anything. So she asked Maria for just one bite of her fries.

"You could order something just to keep me company," Maria suggested. "Besides, I don't want you to eat all my fries."

"No, I really should wait until I get home for dinner," Jennifer said. But Maria kept insisting that Jennifer should order something, too. And everything smelled so good. Jennifer finally gave in.

"I'll have french fries and a chocolate milkshake," Jennifer decided.



STUDENT

Why I Eat It

Directions: List six to ten foods you eat in the left-hand column. In the right-hand column, explain why you choose these foods.

Food	Reason for Choosing
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

STUDENT

Nutritional Survey

Directions: Circle *y* to indicate a *yes* response and *n* to indicate a *no* response.

y n 1. I usually eat breakfast every day.

y n 2. I usually eat three or more meals each day.

y n 3. I usually snack on potato chips, candy, cookies, soft drinks, etc., between meals.

y n 4. I often eat my evening meal after 7:00 p.m.

y n 5. I usually eat a light evening meal.

y n 6. I usually eat white bread.

y n 7. I often eat sugar-coated cereals.

y n 8. I eat a variety of foods.

y n 9. I usually eat lean meat when I eat meat.

y n 10. I usually eat margarine rather than butter.

y n 11. I usually add salt to my food.

y n 12. I usually drink whole milk.

y n 13. I often eat products made with refined flour (pasta, cakes, cookies, etc.).

y n 14. I often eat products made with refined sugar (candy, soft drinks, etc.).

y n 15. I usually eat two or three servings of high-protein foods each day.

y n 16. I usually limit the amount of fat I eat (whole milk, salad dressings, gravies, etc.).

y n 17. I eat more red meat and processed meat than poultry and fish.

y n 18. I often eat foods cooked or seasoned in pork- or other meat-fat.

y n 19. I try not to overeat.

y n 20. I usually eat broiled, baked or boiled foods rather than fried foods.

y n 21. I usually eat breakfast and dinner at home.

y n 22. I eat high-fiber foods each day (fresh fruits, raw vegetables, etc.).

y n 23. I usually drink six or more glasses of water each day.

Scoring:

Give yourself 1 point if you answered ***yes*** to any of the following statements:
1, 2, 5, 8, 9, 10, 15, 16, 19, 20, 21, 22, 23

Give yourself 1 point if you answered ***no*** to any of the following statements:
3, 4, 6, 7, 11, 12, 13, 14, 17, 18

The following scale indicates how healthy your diet is.

17-23 points	Healthy diet.
10-17 points	OK diet.
0-10 points	You may want to reconsider your food choices.

Adapted with permission from Bruess, C. E. and G. Richardson. 1989. *Decisions for Health.* 2d. ed. Dubuque, IA: W. C. Brown Publications.

LESSON 2

YOU AND YOUR NUTRITION

Objective

Students will be able to describe the importance of a specific nutrient.

Time

Two class periods.

Overview

Before students can make informed decisions about nutrition, they need to have a strong knowledge base to counter widespread misinformation about nutrition. In this lesson, students learn about nutrients and their roles. Students then receive **Mission Possible Assignments** to prepare class presentations on specific nutrients.

Instructional Strategies

Class discussion, cooperative learning groups, worksheets.

Teacher Materials and Preparation

HAVE:

- ✓ Paper, markers, blank transparencies and other items students can use for creative projects.
- ✓ Nutrition resources such as health textbooks.

COPY:

- ✓ **Basics of Good Nutrition** student information sheet, one for each student.
- ✓ **Mission Possible Assignment** worksheets, one copy of each worksheet. Each group will be assigned a different nutrient.
- ✓ **Mission Possible Report** worksheet, one for each group.

PREPARE:

- ✓ Complete the necessary information on each **Mission Possible Assignment** worksheet. Fold the worksheets and place them in an empty box.

Procedure

■ Distribute the **Basics of Good Nutrition** student information sheet. Have students read it individually or as a class. Discuss the information and answer student questions.

■ Tell students that in the next assignment they are going to investigate some important nutrients. Divide the class into six cooperative learning groups.

Ask each group to choose an agent. Tell agents to come to the front of the class to select a **Mission Possible Assignment** worksheet from the box. Ask one of the agents to read just the directions to the class.

Tell students they will have the rest of the class period to prepare their presentations which will be made during the next class session. Emphasize that the presentations should be creative as

well as informative. Suggest several ideas students could use to make their presentations—raps, roleplays, panels, skits, songs.

Tell groups how much time they will have for their presentations and where they are to meet. (Time depends on number of groups, length of class period and other items you need to cover.)

■ Distribute a **Mission Possible Report** worksheet to each group. Tell students that in addition to the presentations, each group should develop a list of eight to ten short-answer questions and their answers about its assigned nutrient.

■ At the next class session, have groups make their presentations in the order indicated by the code number on the assignment sheets (Code Number 1 makes the first presentation, etc.). As each group finishes its presentation, collect its **Mission Possible Report**. Tell students the reports will be used for a Nutrient Game Show in the next lesson.

Evaluation

Assess group presentations for students' understanding of the importance of the nutrient their group covered.

STUDENT

Basics of Good Nutrition

Nutrition is the science of food and how it is used in the body. Useful elements of food are called *nutrients*. Our bodies need more than 40 nutrients to stay healthy. The nutrients we need include carbohydrates, proteins, fats, vitamins, minerals and water.

Different foods provide different amounts of nutrients. We need a variety of foods to stay healthy. The Recommended Dietary Allowances (RDAs) tell us how much of the different nutrients we need.

The nutrients in foods give us energy. This energy is measured in Calories. Calories measure the amount of energy that a particular food will produce when it is burned by the body.

Food that is low in Calories and high in nutrients is a choice for good nutrition. Food that is high in Calories and low in nutrients is a poor nutritional choice.

STUDENT

MISSION: POSSIBLE
Assignment: Carbohydrates

Directions: Your mission is to make an interesting, creative class presentation on this nutrient. Be sure to involve all members of your group and to present all the important information about your nutrient to the class.

Synchronize watches to: _____ for a _____ minute presentation.
Rendezvous Point:

Remember, your teacher will deny all association with you should your true identity be discovered. Good luck.

CODE NUMBER: 1

CODE WORDS: Simple carbohydrates—simple sugars, the building blocks of complex carbohydrates
Complex carbohydrates—have three or more simple sugars
Soluble fiber—plant material that is digested and absorbed in the large intestine
Insoluble fiber—plant material that is not digested

BACKGROUND CHECK

The major purpose of carbohydrates is to supply energy for the body's cells. Carbohydrates supply four Calories of energy per gram. Carbohydrates are changed to glucose (a sugar) as they enter the body. Then they are used to repair cells, make new cells and carry out the work of the cells. Carbohydrates can be simple or complex.

Sugars are *simple carbohydrates*. Some sugars are found naturally in foods (fruit, milk, beets and peas). Other sugars are made from sugar cane and sugar beets and then added to foods. Sugar combines with chemicals in the mouth to cause cavities in teeth. Most people should eat fewer foods that have added sugar.

Complex carbohydrates are made of three or more simple sugars that are bonded together. Starch, fiber and glycogen are complex carbohydrates. Starches are found in whole-grain bread, potatoes, rice and vegetables. They have high nutritional benefit.

STUDENT

Fiber may be *soluble* or *insoluble*. One type of fiber *(insoluble)* speeds the passage of food through the digestive tract. It may prevent cancer-causing agents in the colon. Whole grains are good sources of insoluble fiber.

Another type of fiber *(soluble)* may help lower blood cholesterol levels. Oat bran, fruits, dried peas and beans are good sources of soluble fibers.

Extra glucose in the body is formed into glycogen. The body stores glycogen for energy.

Secret agents are the only ones who have access to this information. Remember, this is classified information and may not be released except through your mission presentation.

TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET

STRATEGIES

- ▲ Use less sugar and eat fewer foods with sugar added.
- ▲ Read labels to see if foods have added sugar. Watch for ingredients that end in *-ose*.
- ▲ Choose fresh fruit rather than canned fruit packed in heavy syrup.
- ▲ Cut down on sweet desserts (most are full of added sugar), and substitute more nutritious foods such as fruit.
- ▲ Eat more fresh vegetables.
- ▲ Eat more complex carbohydrates and fewer simple carbohydrates.
- ▲ Eat snacks made with whole grains.

STUDENT

MISSION: POSSIBLE
Assignment: Proteins

Directions: Your mission is to make an interesting, creative class presentation on this nutrient. Be sure to involve all members of your group and to present all the important information about your nutrient to the class.

Synchronize watches to: _____ for a _____ minute presentation.
Rendezvous Point:

Remember, your teacher will deny all association with you should your true identity be discovered. Good luck.

CODE NUMBER: 2

CODE WORDS:
Amino acids—chemicals that are the building blocks of protein
Complete protein—food that contains the eight essential amino acids
Essential amino acids—the building blocks of protein needed from food each day
Incomplete protein—food that is missing one or more of the eight essential amino acids
Osteoporosis—loss of bone density (thickness)

BACKGROUND CHECK

Proteins are important parts of the cells in the body. They hold cells together and speed up chemical reactions inside cells. They supply four Calories of energy per gram. They may be used for energy if the body doesn't get enough energy from carbohydrates and fats.

Amino acids are chemicals that are the building blocks of proteins. There are approximately 20 different amino acids. A number of these are *essential amino acids.* The body cannot produce essential amino acids. They must be obtained from the food we eat.

Foods that contain all of these essential amino acids are called *complete proteins.* Proteins from animal sources are usually complete, while proteins from plant sources are *incomplete.* Proteins that come from animals (milk, cheese, meat, poultry and fish

products) are good sources of complete proteins. However, some of these foods, such as meat and cheese, are also high in fats and cholesterol.

When excess protein is consumed, the excess Calories are stored as fat. Most people eat more protein than they need. It is wise to cut down on animal proteins and eat more plant proteins (dried beans, tofu and combinations of rice and beans). Eating too much protein may contribute to diseases such as *osteoporosis* (brittle bones), heart disease and certain cancers.

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TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET

STRATEGIES

- ▲ Use smaller amounts of meat and poultry to add to meals instead of eating meat as the main dish.
- ▲ Help your family plan more meals with complex carbohydrates (potatoes, rice, vegetables) instead of meat.
- ▲ Combine rice and beans to make a complete protein without using meat.
- ▲ Eat more fish and prepare it in a way that does not add fat.
- ▲ Snack on foods with complex carbohydrates (whole-grain breads and cereals) instead of protein foods.

STUDENT

MISSION: POSSIBLE
Assignment: Fats

Directions: Your mission is to make an interesting, creative class presentation on this nutrient. Be sure to involve all members of your group and to present all the important information about your nutrient to the class.

Synchronize watches to: _____ for a _____ minute presentation.
Rendezvous Point:

Remember, your teacher will deny all association with you should your true identity be discovered. Good luck.

CODE NUMBER: 3

CODE WORDS: Cholesterol—a fat-like substance found in animal products and manufactured by the body
Saturated fats—fats that are usually from animal sources and are usually solid at room temperature
Unsaturated fats—fats that come from plant sources and are usually liquid at room temperature
Lipoproteins—carry cholesterol in the blood

BACKGROUND CHECK
Fats supply energy to the body's cells. They also protect vital organs (like the heart, lungs, liver, etc.) from injury and provide insulation from the cold. Fat carries four vitamins (A, D, E and K). These are called fat-soluble vitamins.

Fat also triggers the release of a chemical that reduces hunger pangs. Fat provides nine Calories per gram. This is more than twice what proteins and carbohydrates provide.

There are two types of fats, *saturated* and *unsaturated*. Saturated fats tend to be from animal sources. They are usually solid at room temperature (like butter). Unsaturated fats come from plant sources. They are usually liquid at room temperature (like corn oil).

Cholesterol is a waxy substance that circulates in the blood. Cholesterol has been associated with heart attacks and strokes. Many experts recommend that most people should reduce their intake of cholesterol.

STUDENT

Although cholesterol is usually thought to be bad, it is still important to the body. Cholesterol is part of cell walls. It is used to protect nerve fibers, and it helps the body produce some hormones.

Lipoproteins (fatty proteins) move cholesterol through the bloodstream. High-density lipoproteins (HDL) are considered good because they remove other cholesterol from the walls of the arteries. The low-density lipoproteins (LDL) and very-low-density lipoproteins (VLDL) are considered bad because they allow cholesterol to move through the bloodstream.

Secret agents are the only ones who have access to this information. Remember, this is classified information and may not be released except through your mission presentation.

TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET

STRATEGIES

- Choose lean meats and poultry.
- Use skim or low-fat milk products.
- Limit the amount of fats and oils you use. Use less saturated fat (fat from animal sources).
- Before cooking, remove the fat from meats and the skin from poultry.
- Bake, broil or boil your food, instead of frying it.
- Eat less deep-fried and breaded foods.
- Read labels. Find out how much fat and what kind of fat is in the foods you eat.

STUDENT

MISSION: POSSIBLE
Assignment: Vitamins

Directions: Your mission is to make an interesting, creative class presentation on this nutrient. Be sure to involve all members of your group and to present all the important information about your nutrient to the class.

Synchronize watches to: _____ for a _____ minute presentation.
Rendezvous Point:

Remember, your teacher will deny all association with you should your true identity be discovered. Good luck.

CODE NUMBER: 4

CODE WORDS: Fat-soluble vitamins—vitamins that are transported and stored in fat
Water-soluble vitamins—vitamins that are dissolved in water within the body

BACKGROUND CHECK

Many people think that vitamins provide energy. This is not true. Vitamins are organic substances. They are needed in small amounts in order for chemical reactions to occur in the body.

Vitamins are grouped by whether they dissolve in fat or water. Vitamins that dissolve in fat *(fat-soluble vitamins)* are stored and transported by the fat cells of the body. Vitamins A, D, E and K are fat-soluble. Fat-soluble vitamins can be stored for long periods of time so we do not need to eat foods containing them every day.

Vitamins that dissolve in water are called *water-soluble vitamins*. They include the eight B-vitamins and vitamin C. These vitamins are not stored in the body so we need to eat foods that contain them every day.

Experts disagree about taking vitamin supplements. Most people who eat a balanced diet from a variety of foods do not need to take vitamin pills.

STUDENT

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TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET

STRATEGIES

▲ The best way to get enough vitamins is to eat a balanced diet from a variety of foods.

▲ Some of the groups of people who may be advised to take vitamins include:

- people who are preparing for or recovering from surgery;
- people with certain health problems;
- older people.

STUDENT

MISSION: POSSIBLE
Assignment: Minerals

Directions: Your mission is to make an interesting, creative class presentation on this nutrient. Be sure to involve all members of your group and to present all the important information about your nutrient to the class.

Synchronize watches to: _____ for a _____ minute presentation.
Rendezvous Point:

Remember, your teacher will deny all association with you should your true identity be discovered. Good luck.

CODE NUMBER: 5

CODE WORDS: Macrominerals—inorganic substances that are required in large amounts
Trace minerals—inorganic substances that are required in small amounts

BACKGROUND CHECK

Minerals are inorganic substances that are used by the body for metabolism. The body requires large amounts of some minerals. These are called *macrominerals.* They include calcium, magnesium, sodium, potassium, phosphorus and chlorine. The body requires much smaller amounts of other minerals.

Calcium, sodium and iron are well-known minerals. *Calcium* is needed for growth and maintenance of strong bones and teeth. It helps the blood clot following an injury, controls the flow of fluids in and out of the cells, and helps nerves and muscles work normally.

Good sources of calcium include milk and cheese, turnips, spinach and mustard greens. Non-fat or low-fat milk and cheese are best. These foods provide all the calcium, but less saturated fat.

Sodium and *chloride* are the components of table salt. Sodium has been linked to high blood pressure. The body needs sodium, but it is not usually necessary to add salt to

food to get enough sodium. Packaged foods and snack foods often have large amounts of sodium.

Iron is one of the nutrients that is most often missing in the body. Iron is used mainly to make *hemoglobin*, the part of the blood that moves oxygen from the lungs to the body tissue.

Animal organs are good sources of iron, but they contain high amounts of saturated fats. Other good sources of iron are leafy green vegetables, whole grains, dried fruits and legumes.

Potassium makes up 5 percent of the total amount of minerals in the body. It helps stimulate the nerves that help muscles contract, and it's needed for normal growth. Potassium also works with sodium to keep the heartbeat normal and to nourish the muscles.

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TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET

STRATEGIES

- ▲ Use less salt and sodium. Too much salt and sodium can reduce the body's stores of potassium.
- ▲ Eat lots of green leafy vegetables, whole grains, dried fruits and legumes. They are good sources of iron.
- ▲ Drink lots of low-fat or non-fat milk to be sure you get enough calcium.

STUDENT

MISSION: POSSIBLE

Assignment: Water

Directions: Your mission is to make an interesting, creative class presentation on this nutrient. Be sure to involve all members of your group and to present all the important information about your nutrient to the class.

Synchronize watches to: _____ for a _____ minute presentation.
Rendezvous Point:

Remember, your teacher will deny all association with you should your true identity be discovered. Good luck.

CODE NUMBER: 6

CODE WORDS: Dehydration—loss of water from the body tissues

BACKGROUND CHECK

Water is the most important nutrient. People can survive only a few days without water. Water carries the other nutrients to the cells. Water also carries waste away from cells and regulates body temperature. Every day we lose as much as five or six glasses of water through urination, perspiration and breathing.

The body gets water from foods and liquids. More water is needed in hot weather and during exercise to prevent dehydration. Dehydration occurs when too much water is removed from the cells of the body.

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TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET

STRATEGIES

- ▲ Dehydration can be fatal. Drink water before you feel thirsty.
- ▲ Water is the best drink during exercise and sports—better than soda or special athletic drinks.
- ▲ You may want to take along a water bottle whenever you exercise.

STUDENT

MISSION: POSSIBLE
Report

Directions: Use this form to report your work on the Mission Possible Assignment. The special codes for this report are questions (Q) and answers (A). As a group, develop eight to ten questions about the assigned nutrient that can be answered in a few words. Write the questions and answers in the space provided. Return this report to your instructor.

1. Q _____
   A _____
2. Q _____
   A _____
3. Q _____
   A _____
4. Q _____
   A _____
5. Q _____
   A _____
6. Q _____
   A _____
7. Q _____
   A _____
8. Q _____
   A _____
9. Q _____
   A _____
10. Q _____
    A _____

LESSON
3

WHAT DO YOU KNOW?

Objective

Students will be able to explain the function of the various nutrients.

Time

One class period.

Overview

This lesson involves a Nutrient Game Show, using questions developed for the **Mission Possible Report** in Lesson 2. Students work in teams to answer questions about the major nutrients.

Instructional Strategies

Cooperative learning groups, games.

Teacher Materials and Preparation

HAVE:

✓ Overhead projector.

✓ **Mission Possible Report** worksheets from Lesson 2.

MAKE:

✓ Transparency of **Nutrient Game Show**.

Procedure

■ Tell students they are going to have a Nutrient Game Show. You can use the same groups as the **Mission Possible Assignment** in Lesson 2, or form six new groups. Use questions from the **Mission Possible Report** worksheets.

Start Round 1 by asking a group a question about one of the nutrients. If the group misses the answer, the next group can respond to that question or request a new question.

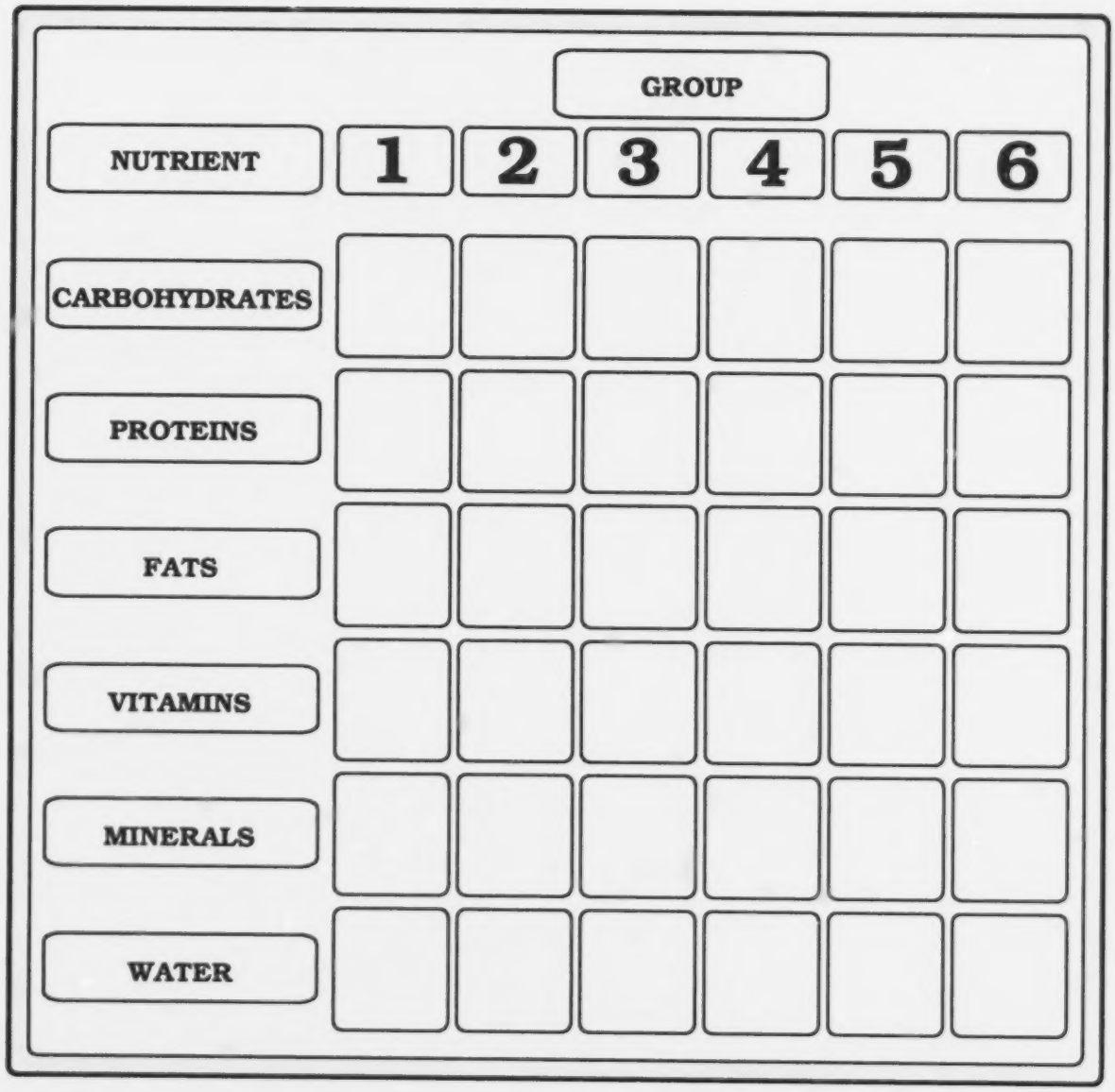
Round 2 should cover questions on the next nutrient, etc. The first group that correctly answers two questions on each nutrient wins. Use the **Nutrient Game Show** transparency or copy the chart onto the board to keep score.

Evaluation

Have students write "I Learned..." statements and rank themselves on their level of participation and/or cooperation.
Assess student responses during the Nutrient Game Show for their understanding of each nutrient's function.

TEACHER

Nutrient Game Show



LESSON 4

BALANCING THE CHOICES

Objective

Students will be able to identify foods that contribute to a balanced diet.

Time

One class period and additional time when the Food Diary assignment is completed.

Overview

Students are more likely to make changes in their eating habits if they don't feel deprived of their favorite foods. Key concepts to emphasize are *moderation*—it might be okay to drink soda occasionally—and *variety*. Eating a variety of foods contributes to a balanced diet.

The food groups will be reviewed in this lesson, and students will have an opportunity to suggest ways to make food choices more nutritious. They will also be asked to keep a diary of food choices for 24 hours and determine which are positive choices and which are negative choices.

Instructional Strategies

Class discussion, creative expression, games, teacher lecture, worksheets.

Teacher Materials and Preparation

HAVE:

✓ Overhead projector.
✓ Paper and markers or pens for **Food Flashcards**.

COPY:

✓ **Food Diary** worksheet, one for each student.

MAKE:

✓ Transparency of **Food Groups**.

PREPARE:

✓ Sample serving sizes of foods in the four food groups (optional).
✓ **What's My Food Group?** strips, one for each student.
✓ **Food Flashcards**.

Procedure

■ Show students the **Food Groups** transparency. Review the main nutrients in the food groups, the portion sizes and the number of recommended servings. Emphasize the importance of eating a variety of foods. Tell students that no single food can supply all the nutrients we need to stay healthy.

Explain that foods are divided into four groups. The groups are based on the similar nutrient contents of the foods. Note that there is a wide variety of foods within these groups. Tell students that items that don't fit into these groups are foods that tend to be high in calories and low in nutrients. These foods include fats, sweets and soft drinks.

Review some of the foods and the recommended serving sizes. Tell students that foods within a specific group may have similar nutrients, but their nutritional value may be very different. Suggest that students should choose foods that are lower in sodium, fat and sugar content and higher in fiber and complex carbohydrates.

Bring in sample serving sizes, if possible. Note that many teenagers may need to eat more from the bread/cereal group and the fruit/vegetable group in order to consume enough Calories.

You may want to give students approximate Calorie counts for the items you bring. Compare these items and their Calorie counts to the Calorie content of some snack foods or foods sold at fast-food restaurants.

■ Distribute the **What's My Food Group?** strips. Tell students to list a food item and name its food group. Explain that each student will have a chance to be the featured guest in the What's My Food Group? game.

Before each featured guest appears, be sure the student has listed the correct food group. Tell the class to guess what food the featured student represents. Students should ask questions the featured guest can answer yes or no. Tell the class to guess the food, then determine the food group.

■ Discuss the effects food preparation can have on nutritional value. Emphasize that the way a food is prepared can change the amount of Calories and fat for that item. Tell students that it is always better to boil, broil, microwave or bake foods than to fry them. Note too that overcooking items such as vegetables can result in loss of nutrients.

Discuss the difference that extras can make in the nutritional value of a food item. Many people think of a baked potato as being high in calories and low in nutritional value. However, a typical baked potato contains 90 calories (flesh and skin) and offers good nutritional value. But when we add butter, sour cream and bacon bits, the Calorie content skyrockets.

Tell students that many other nutritious foods are made less nutritious by the extras we add. For example, most vegetables are high in nutritional value and low in calories. However, when we add creamy or buttery sauces to vegetables, the fat and Calorie content can increase significantly.

■ Tell students they are going to have the opportunity to suggest more nutritious food choices. Show students the **Food Flashcards**. For each card, ask students to suggest ways to make the

food more nutritious. (Some suggestions are on the back of each card.)

Emphasize that the Calorie counts indicated for the different items are approximate. Calories are one way to compare the nutritional value of different food choices.

As time allows, have students make their own **Food Flashcards**. Distribute paper and markers. Tell students to draw a food on one side of the paper. Students should list more nutritious alternatives on the back. Let students share these cards with the class, or post them in the classroom.

■ Distribute the **Food Diary** worksheet. Ask students to keep track of everything they consume in the next 24 hours.

If students developed a list of factors that help determine whether a food is healthy as part of Follow-Up/Extension in Lesson 1, refer to that list. List the factors on the board. If not, have students brainstorm a list. Some factors include:

- Methods of preparation—Fried foods are poorer choices than foods that are broiled, baked, boiled or microwaved.
- Fat/cholesterol content—Foods high in fat and cholesterol are poorer choices than foods low in fat and cholesterol.
- Refined sugar content—Foods that are high in sugar (cookies, candy) are usually not good choices.
- Salt and sodium content—Foods high in salt and sodium are poorer choices than foods low in salt and sodium.
- Amount of processing—Foods close to their natural state (fresh strawberries) are better choices than processed foods (strawberry jam).
- Number of calories—Foods that are high in calories and low in nutrients are poor nutritional choices. Foods high in nutrients and low in calories are better choices.

Tell students to evaluate whether their food choices had a more positive or negative nutritional value.

Ask students to provide on the **Food Diary** worksheet some better alternatives for the foods they ate that had less nutritional value.

Emphasize that students should not alter their food choices for this activity. Tell students the **Food Diary** information will be private and will not be graded.

When students have completed the worksheet, review their work in class. Ask for volunteers to give some examples of foods they ate that had negative nutritional value. What alternatives did they think of? Ask students if their eating habits have more positive or negative nutritional value.

Evaluation

Have students write a short paragraph describing the factors that influence the nutritional value of foods.

TEACHER

Food Groups

Food Group	Number of Daily Servings for Teenagers*	Serving Size
Fruits and Vegetables	4 servings (fresh, frozen, canned)	1/2 c. vegetable, 1 medium fruit, 1/2 c. juice
Breads and Cereals	4 servings (whole grain or enriched)	1 slice bread; 1/2 c. rice, pasta, cooked cereal or noodles; 1 oz. dry cereal
Milk and Cheese	4 servings (low-fat)	1 c. low-fat, skim or non-fat milk; 1 c. yogurt or cottage cheese; 1 oz. cheese
Meat/Protein	2 servings	2-3 oz. poultry, fish or lean meat; 1 c. dried beans, peas, lentils or legumes; 4 T. peanut butter

* Teenagers may need to eat more from the breads and cereals group and the fruits and vegetables group to consume enough calories.

TEACHER

What's My Food Group?

Directions: Prepare one of the following strips for each student.

Food _____ Food Group _____

Food _____ Food Group _____

Food _____ Food Group _____

Food _____ Food Group _____

Food _____ Food Group _____

Food _____ Food Group _____

TEACHER

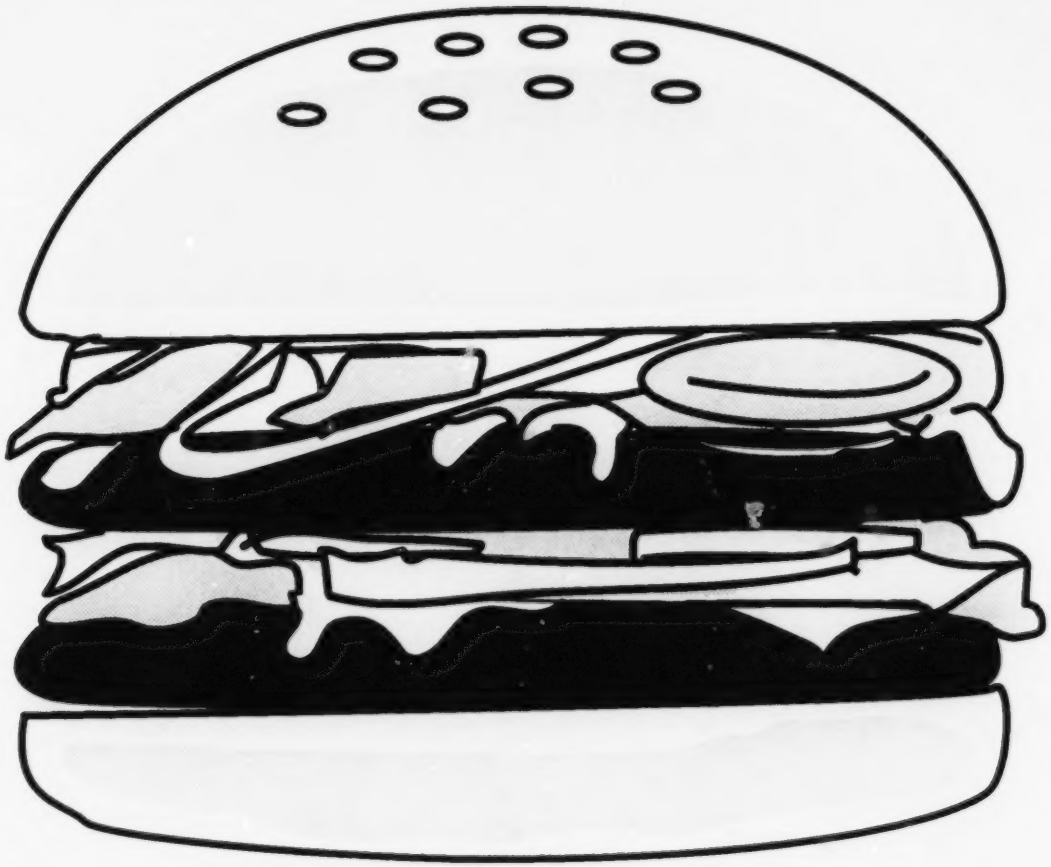
Food Flashcards

Hot fudge sundae
350 Calories

Sherbet, ice milk, low-fat frozen yogurt
150-200 Calories per cup

TEACHER

Food Flashcards

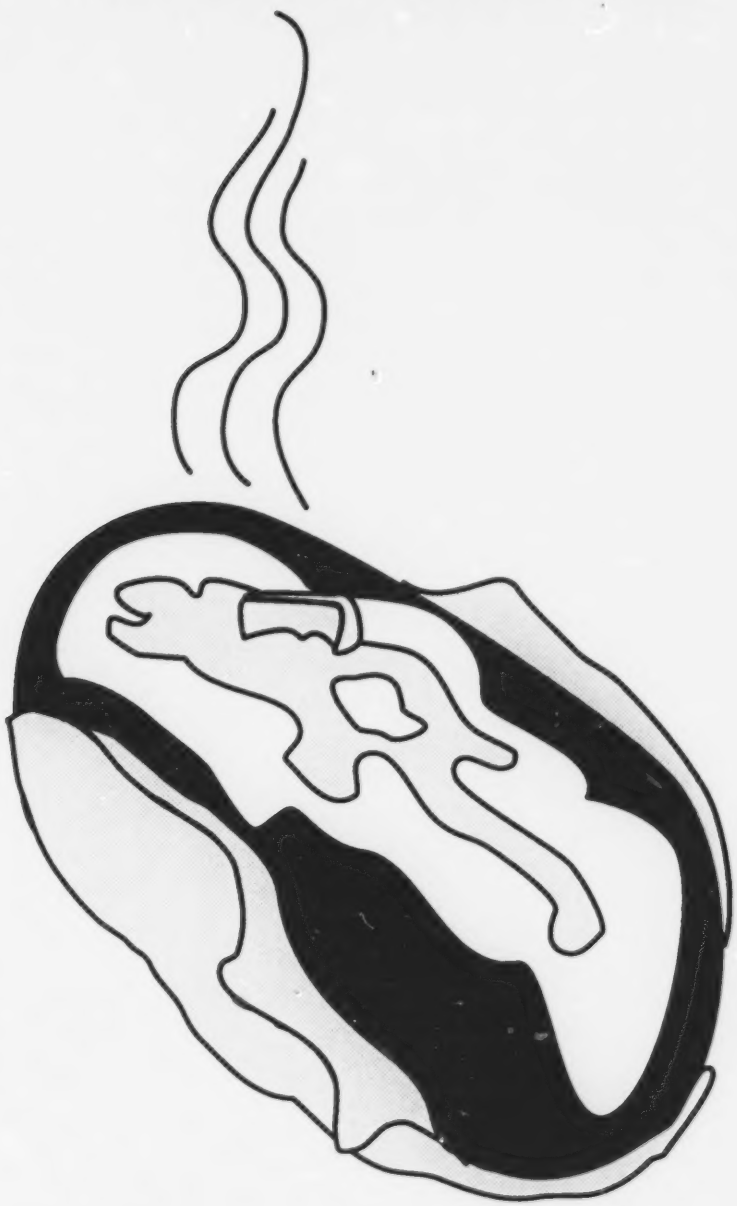


Double hamburger with "the works"
500-700 Calories

Broiled hamburger patty with a tomato slice
250 Calories

TEACHER

Food Flashcards



Baked potato with butter and sour cream
500 Calories

Baked potato with plain yogurt
130 Calories

TEACHER

Food Flashcards

Canned peaches in heavy syrup
1/2 cup = 100 Calories

Fresh peach or canned peaches in natural juices
One peach or 1/2 c. canned peaches = 50 Calories

TEACHER

Food Flashcards

Tuna packed in oil
405 Calories

Tuna packed in water
One can = 230 Calories

STUDENT

Food Diary

Directions: List all of the food you eat in the next 24 hours. Then indicate whether you consider each food item nutritious (+) or non-nutritious (-). If it is non-nutritious (-), suggest ways the item could be more nutritious. This activity can help you become more aware of your eating habits.

Food Group	Number of Servings
Fruits and vegetables	☐
Breads and cereals	☐
Milk and cheese	☐
Meat/protein	☐
Extra foods	☐

Time	Item Eaten	Nutritious (+) or Non-Nutritious (-)	How It Could Be More Nutritious	Food Group

LESSON 5

CONSUMING CONCERNS

Objective

Students will be able to describe how to use the information on food labels to make nutrition decisions.

Time

One class period.

Overview

It is not easy to be a wise food consumer. There are many food choices, and companies have done a good job of promoting the nutritional benefits and sensory appeal of their products. Therefore, it takes special effort as consumers to be sure that our food choices are good ones.

In this lesson, students have an opportunity to look at the usefulness of food labeling information in making consumer choices about nutrition.

Instructional Strategies

Brainstorming, class discussion, teacher lecture, worksheets.

Teacher Materials and Preparation

HAVE:

✓ Overhead projector.
✓ Transparency marking pen.

COPY:

✓ **What Is It?** worksheet, one for each student.

MAKE:

✓ Transparency of **What Is It?** worksheet.
✓ Transparency of **Nutrition Label.**

REVIEW:

✓ **Food Additives** ***Teacher Background Information.***
✓ **What Is It?** ***Key.***

Procedure

■ Tell students that in order to make good choices for nutrition, they will need to become smart consumers. One way they can learn more about the foods they eat is by reading labels. Most packaged foods will list ingredients on the label. Each ingredient must be listed in order of its concentration in the product. The first ingredient listed is present in the largest amount.

Tell students that some of these ingredients are food additives. Discuss some common food additives and their purposes, using ***Teacher Background Information*** as a guide. Point out that one way to avoid additives is to eat food in its more natural state—fresh fruits and vegetables, etc.

■ Distribute the **What Is It?** worksheet. Show students a transparency of the worksheet, and discuss each label. Can students identify any food additives? Ask students what they think the purpose of some of the ingredients might be.

Then ask students to identify the product and write the name on the

worksheet. Fill in the name of each product on the transparency. (Correct answers are indicated on the **What Is It?** ***Key.***)

■ Show students the **Nutrition Label** transparency. Tell students that nutrition labeling helps us select the most nutritious foods. All labels with nutrition information must follow the same format. Any food that has an added nutrient or makes a nutritional claim must have a nutrition label.

Review the information on the label. Information is divided into two categories. The first is *Nutritional Information per Serving,* which includes serving size; servings per container; Calories per serving and protein, carbohydrates, and fat in grams per serving. The second category is *percentage of U.S. RDA.* The amounts of vitamins A and D, thiamine, riboflavin and niacin must be listed. Calcium and iron must also be listed. Protein must be shown as a percentage of the U.S. RDA, as well as in weight by grams.

The number of Calories per serving must be listed on the label. Tell students they can multiply the grams per serving by the Calories per gram to obtain the total Calories per serving. Based on the percentages listed on the nutrition label, ask students the following questions:

- How many Calories are in one container? (350)
- How many Calories are in 1/4 cup? (35)
- How much would you need to eat to meet the U.S. RDA for Vitamin C? (10 cups)
- How much would you have to eat to meet the U.S. RDA for calcium? (50 cups)

Tell students that nutrition labeling can help us select the most nutritious foods and compare the cost per serving of similar foods. For example, two products of the same weight may cost the same. However, we may learn from the label that one may provide a higher percentage of the U.S. RDA for several nutrients. This would probably be the better buy.

Evaluation

Pose the following question to students: "If you wanted to limit the amount of sugar (or sodium) you ate each day, how could food labels be helpful?" Have students discuss this orally or in writing.

Assess their ability to describe the usefulness of food labels to make a decision about nutrition.

Food Additives

Teacher Background Information

Most prepared foods have a long list of ingredients on the label. Many of these items are food additives. These additives allow foods to be shipped around the country and stored for long periods of time. Additives are used to maintain or improve nutritional value, maintain freshness, help in processing or preparation, and make foods look and taste more appealing.

An additive is any substance that becomes part of a food product. It can be added to the product directly or indirectly. There are 2,800 substances intentionally added to foods to produce a desired effect. Ten thousand other substances may be added to foods during processing, packaging or storage.

The most common food additives are sugar, salt and corn syrup. These three, along with other substances such as citric acid, baking soda, vegetable colors, mustard and pepper, account for more than 98 percent of all additives used in this country.

Food additives have become part of our culture. People expect to have a wide supply of foods available all year and want the foods to last a long time. The consumer can play an active role in the regulation of additives by choosing products carefully and by sharing concerns about unnecessary additives with manufacturers.

STUDENT

What Is It?

Directions: Read each list of ingredients. Try to decide what each product is, and write the product name after the question.

1. What is it?

Ingredients: Whole wheat flour, enriched wheat flour (contains niacin, reduced iron, thiamine mononitrate [vitamin B1], riboflavin [vitamin B2], vegetable shortening [partially hydrogenated soybean oil]), sugar, high fructose corn syrup, salt, malted barley flour, vegetable colors (annatto extract, paprika and turmeric oleoresins). Sodium content: 60 mg per 1/2 oz. serving

2. What is it?

Ingredients: Rolled oats, oat bran, concentrated fruit juices and fruit (apple, pineapple, grape, pear, peach, apricot), brown rice flour,* rye flour,* corn flour,* sprouted barley malt. *Grown without chemical fertilizers, herbicides or pesticides.

3. What is it?

Ingredients: Sugar, modified tapioca starch, sodium phosphates (for proper set), salt, hydrogenated soybean oil, di- and monoglycerides (emulsifier—for uniform dispersion of oil), nonfat milk, artificial flavor, artificial color including FD&C yellow no. 5, natural flavor, BHA (a preservative).

4. What is it?

Ingredients: Part-skim milk, cheese culture, salt, enzymes, sodium aluminosilicate added to prevent caking, potassium sorbate as a preservative.

5. What is it?

Ingredients: Water, asparagus, wheat flour, whey, vegetable oil (corn, cottonseed or partially hydrogenated soybean oil), salt, sugar, butter, corn starch, dried dairy blend (whey, calcium caseinate), margarine (partially hydrogenated soybean oil, water and beta carotene for color), monosodium glutamate, yeast extract and hydrolyzed vegetable protein, soy protein isolate and natural flavoring.

6. What is it?

Ingredients: Tomato paste made from red ripe tomatoes, distilled vinegar, corn syrup, salt, onion powder, spice, natural flavoring.

7. What is it?

Ingredients:
Soybean oil, sugar, water, vinegar, tomato paste, salt, dehydrated onion, xanthan gum, natural flavor, calcium disodium added to protect flavor, apocarotenal (color).

TEACHER

What Is It?

Key

Directions: Read each list of ingredients. Try to decide what each product is, and write the product name after the question.

1. What is it? ***Low-salt Wheat Thins Snack Crackers***

Ingredients: Whole wheat flour, enriched wheat flour (contains niacin, reduced iron, thiamine mononitrate [vitamin B1], riboflavin [vitamin B2], vegetable shortening [partially hydrogenated soybean oil]), sugar, high fructose corn syrup, salt, malted barley flour, vegetable colors (annatto extract, paprika and turmeric oleoresins). Sodium content: 60 mg per 1/2 oz. serving

2. What is it? ***Health Valley Oat Bran Flakes***

Ingredients: Rolled oats, oat bran, concentrated fruit juices and fruit (apple, pineapple, grape, pear, peach, apricot), brown rice flour,* rye flour,* corn flour,* sprouted barley malt. *Grown without chemical fertilizers, herbicides or pesticides.

3. What is it? ***Jell-O Instant Pudding and Pie Filling***

Ingredients: Sugar, modified tapioca starch, sodium phosphates (for proper set), salt, hydrogenated soybean oil, di- and monoglycerides (emulsifier—for uniform dispersion of oil), nonfat milk, artificial flavor, artificial color including FD&C yellow no. 5, natural flavor, BHA (a preservative).

4. What is it? ***Kraft Parmesan Cheese***

Ingredients: Part-skim milk, cheese culture, salt, enzymes, sodium aluminosilicate added to prevent caking, potassium sorbate as a preservative.

5. What is it? ***Campbell's Cream of Asparagus Soup***

Ingredients: Water, asparagus, wheat flour, whey, vegetable oil (corn, cottonseed or partially hydrogenated soybean oil), salt, sugar, butter, corn starch, dried dairy blend (whey, calcium caseinate), margarine (partially hydrogenated soybean oil, water and beta carotene for color), monosodium glutamate, yeast extract and hydrolyzed vegetable protein, soy protein isolate and natural flavoring.

6. What is it? ***Heinz Tomato Ketchup***

Ingredients: Tomato paste made from red ripe tomatoes, distilled vinegar, corn syrup, salt, onion powder, spice, natural flavoring.

7. What is it? ***Kraft Catalina Dressing***

Ingredients: Soybean oil, sugar, water, vinegar, tomato paste, salt, dehydrated onion, xanthan gum, natural flavor, calcium disodium added to protect flavor, apocarotenal (color).

TEACHER

Nutrition Label

Most food labels will look similar to the following:

Nutrition information—per one-cup serving

Servings per container—approx. 2-1/2

Calories.....140

Protein .....1 g

Carbohydrate .....35 g

Fat.....1 g

Percentage of U.S. recommended daily allowances (U.S. RDA) per one-cup serving

Protein .....*

Vitamin A.....2

Vitamin C 10

Thiamine (vit. B1).....10

Riboflavin (vit. B2).....2

Niacin 2

Calcium 2

Iron.....4

*Contains less than 2% of the U.S. RDA of this nutrient

LESSON
6

EATING OUT

Objective

Students will be able to evaluate nutritional options when eating in restaurants.

Time

One class period (plus optional time outside of class to complete worksheet).

Overview

Making sound nutrition choices when eating out may be difficult. This lesson provides an opportunity for students to apply their nutrition knowledge to food decisions made away from home. They investigate the nutritional choices available at school. Students also develop a survival guide for eating out.

Instructional Strategies

Brainstorming, class discussion, cooperative learning groups, worksheets.

Teacher Materials and Preparation

HAVE:

✓ Chalk and chalkboard.
✓ Butcher paper and markers (optional).

COPY:

✓ **How to Eat Out Nutritiously** worksheet, one for each student.

PREPARE:

✓ List of restaurants in the area, or bring sample menus to class.

Procedure

■ Ask students to think of all of the places at school where they can purchase food items. List these on the board. Be sure students include areas such as the cafeteria, school store, vending machines and concession stands.

Have students brainstorm a list of the foods that are sold in each of these areas. Then ask students how nutritious each of the listed items is. *Note:* Assess the situation at your school before implementing this step to determine if there would be any problems.

■ Tell students they are the consumers of school food. Divide the class into groups of four to six students. Ask students to think about ways they could influence the nutritional quality of the foods that are available at school.

Tell students to work with their groups to develop a list of things they could do to improve the nutritional value of school food. Ask groups to report to the class. Discuss the suggestions.

Tell students they are also consumers of food sold in stores and restaurants. Ask them what they could do as consumers to influence the nutritional value of these foods. Ask groups to discuss ways to eat out nutritiously. Have each group develop a list of

suggestions and write it on the board or on butcher paper to share with the class.

Compare the groups' lists. Note the suggestions that appear on more than one list.

■ Distribute the **How to Eat Out Nutritiously** worksheet. Ask students to select a restaurant from the list of local restaurants. *Or* distribute the sample menus. Try to have a variety of restaurants represented. Tell students to visit the restaurant or study the menu to complete the worksheet.

When students have completed the assignment, ask for volunteers to share their findings with the class. Discuss the nutritional value of the foods served in the restaurants.

Evaluation

Have students write "I Learned..." statements and rank themselves on their level of participation.

Assess student recommendations for nutritional dining on the **How to Eat Out Nutritiously** worksheet to determine their ability to evaluate food options in local restaurants.

STUDENT

How to Eat Out Nutritiously

Directions: Study the menu for the restaurant you have chosen. Choose a nutritious and well-balanced breakfast, lunch or dinner. You may want to check with restaurant workers to see what they recommend for healthy choices. Be sure to use your own judgment in your final recommendations.

Check to be sure you have the recommended number of servings from each food group. If you can't find any good nutritional choices, explain what's wrong with the menu.

Name of restaurant: _____

Address of restaurant: _____

Type of restaurant (fast food, health food, steak house, breakfast, etc.): _____

Breakfast: _____

_____

_____

Lunch: _____

_____

_____

Dinner: _____

_____

_____

1. List any special concerns you have about eating at this restaurant (e.g., It was dirty).

2. Would you recommend eating here for a nutritious meal? Why or why not?

LESSON 7

WHO AM I?

Objective

Students will be able to explain that the wide range of normal body sizes and shapes is not always portrayed in the media.

Time

One class period.

Overview

People come in many different sizes and shapes, most within a very normal range. However, middle school students often have difficulty realizing that there is a wide range of heights and weights that are normal. This is especially true with their peers, since they grow at different rates.

In this lesson, students are asked to look at pictures of models in magazines and to discuss the factors that influence views of body shape. The impact of media in portraying the image of ideal physique and how these portrayals influence body image cannot be emphasized enough.

Note: Be especially aware of the sensitivity surrounding this topic. The self-image of your students is very delicate at this age, so proceed carefully. Be sure to emphasize the wide range of body sizes and shapes.

Instructional Strategies

Brainstorming, class discussion, teacher lecture.

Teacher Materials and Preparation

ASSIGN:

✓ Students to bring one or more magazine ads that include pictures of people to class.

HAVE:

✓ Scissors and magazines.

Procedure

■ Tell students to take out their magazine ads. Remind them that the people in the ads are paid models. Allow students to use the magazines you brought in if they want to choose a different ad or if they forgot to bring one. Allow students about five minutes to select a photo.

Ask for volunteers to show their ads to the class. Lead a class discussion of the ads, using the following questions:

- What product is being advertised?
- How do you think the appearance of the model helps sell the product?
- How are the various photos alike?
- How many people in real life look like the models in the ads?
- How do these ads make the people who see them feel about their own looks?

Discuss how realistic it is for people to have body shapes like these models.

■ Explain that our bodies come in many different shapes and sizes, most within an average range. Emphasize that it is not possible for most people to look like the models in these ads. Tell students it may not be healthy to be as thin as many models are.

Discuss the importance of accepting our body shapes and feeling good about ourselves. Note that there are healthy and positive ways we can improve ourselves.

Explain that some people are never happy with their bodies. They may always be trying to change things that cannot be changed. These people will never be happy, whatever their body shape. Tell students that people are much happier if they accept a range of normal body sizes and shapes.

■ Ask students to brainstorm some ways they could learn to be more accepting of their body shapes. Ask students to think about the body images often portrayed in the media. How could students combat these images?

Ask students to suggest some positive ways to improve body shape and body image. For example: Don't tease people about their physiques. Accept that people grow at different rates and at different times.

Evaluation

Have students write a short paragraph entitled "What the ads don't show." In the paragraph, students should explain that the portrayal of body sizes in the media is usually fairly narrow. In the paragraph, have students explain how ads impact young people's personal body image.

LESSON 8

WHICH WEIGH SHOULD I GO?

Objective

Students will be able to differentiate fact from fiction regarding weight control information.

Time

One class period.

Overview

It is common knowledge that many adult Americans are highly interested in weight control. It is important to recognize that this interest is keen in young people as well. It is likely that many of the students in your class have already been on diets (perhaps several diets) whether or not they needed to lose or gain weight. Dieting has become the great American pastime.

The vast majority of people who lose weight gain it back. It is not realistic to change eating patterns for a couple of weeks and then go back to the old eating patterns. That will just perpetuate the dieting cycle. Weight loss (or gain) is not only influenced by eating.

Many other factors are involved, including level of exercise and inherited predispositions.

In this lesson, students have an opportunity to learn facts about weight control, develop guidelines for evaluating weight control plans and respond to questions related to weight control issues.

Note: As a teacher, you need to be aware that many young people are dieting who shouldn't be. These students may be making poor nutritional choices when they do diet.

Be especially sensitive to your students in presenting this lesson. Some may be sensitive to this topic whether or not they appear to be underweight or overweight.

Instructional Strategies

Cooperative learning groups, teacher lecture, worksheets.

Teacher Materials and Preparation

COPY:

✓ **Dear Dr. Diet** worksheet, one for each student.

MAKE:

✓ Transparency of **Diet Questions**.

REVIEW:

✓ **Weight Control *Teacher Background Information*.**

Procedure

■ Present a mini-lecture on the basics of weight control and eating disorders, using ***Teacher Background Information*** as a reference. Display the **Diet Questions** transparency during the lecture on weight control.

■ Tell students that many young people who are dieting shouldn't be. Mention the signs that may indicate that someone has an eating disorder (see ***Teacher Background Information***). Eating disor-

ders are not only unhealthy, they can be deadly. Professional help is essential.

Explain to students that diets are serious and shouldn't be undertaken lightly. In general, weight loss diets are not recommended for young people. Their bodies are not yet fully developed, and dieting could be harmful. The emphasis for young people is to make healthful food choices and to exercise regularly.

■ Distribute the **Dear Dr. Diet** worksheet. Tell students that they have an opportunity to give advice on questions related to dieting. Divide the class into cooperative learning groups. Tell students to work with their groups to decide what advice they will give to each case study. Have groups share their advice with the class.

Evaluation

Assess student ability to differentiate fact from fiction based on responses to the **Dear Dr. Diet** worksheet.

Have students write "I Learned..." statements and rank themselves on their level of participation.

Follow-Up/ Extension

Have students write their own Dr. Diet letters and give appropriate advice.

Weight Control

Teacher Background Information

Eating habits that we develop as children tend to be challenging to break. Therefore, it is important for young people to develop sound eating habits.

Motivations for maintaining certain weights include cosmetic reasons, health and self-concept. The primary motivation for weight gain or loss is often cosmetic.

To achieve and maintain a desired weight, people need to permanently change their eating and exercise habits. They must also be patient about the time it takes to achieve the desired results.

Exercise and sound eating habits are important factors in achieving and maintaining desired body weight. Exercise burns Calories, suppresses appetite and strengthens muscle tissue. Food choices and the amount of food consumed influence weight.

Another major factor affecting weight is heredity. The predisposition to be a certain weight is a key influence that cannot be changed through diet or exercise.

Dietary changes must be permanent rather than temporary to ensure success. Many popular diets are not sound. Some may be too low in Calories, while others limit nutrients. Review the **Diet Questions** transparency for a list of things to consider when contemplating a weight control plan.

Traditional methods of determining body weight involve measurement of mass on a scale. This technique does not measure the proportion of pounds that are fat and lean tissue. A more accurate evaluation of body composition measures body fat. The two most common ways of measuring body fat are skin-fold calipers and underwater weighing.

Being underweight is a problem for some. It is important to eat nutritiously when increasing Calories. Complex carbohydrates are a much better choice than foods high in fat and sugar.

Eating Disorders

The two most common eating disorders are anorexia nervosa and bulimia. Although females are more often affected by eating disorders, a growing number of males are affected.

Anorexia refers to self-starvation. Someone with anorexia feels too heavy regardless of how much weight is lost. Bulimia is characterized by binge eating. Bulimics tend to be within 10 to 15 pounds of normal weight.

The following warning signs may be indicators that someone has an eating disorder. Suggest to students that they talk to a teacher or school nurse if they suspect that one of their friends has an eating disorder.

Anorexia Nervosa

Abnormal weight loss of 25 percent with no known medical reason.

Reduction in food intake, denial of hunger and decrease in consumption of foods containing fat.

Prolonged exercising despite fatigue and weakness.

Intense fear of gaining weight.

Peculiar patterns of handling food.

Amenorrhea (menstruation stops) in women.

Some exhibit bulimic episodes of binge eating followed by vomiting or laxative abuse.

Bulimia

Concern about weight and attempts to control weight by diet, vomiting, or laxative and diuretic abuse.

Eating patterns alternate between binges and fasts.

Secretive about binges and vomiting.

Food consumed during a binge has a high Caloric content.

Majority of individuals are within a normal weight; some may be slightly underweight or overweight.

Depressive moods may occur.

Source: National Anorexic Aid Society

TEACHER

Diet Questions

1. Does the plan include foods from all four food groups?
2. Are the foods easy to locate?
3. Are the foods on the plan the same price as foods you usually eat?
4. Can these foods be eaten by all family members over the age of two?
5. Would you want to keep eating these foods after the weight is lost?
6. Does the plan suggest that Calories do count?
7. Does it mention evaluating body fat?
8. Is exercise part of the plan?
9. Does the plan recommend exercise at least three times a week?
10. Does the plan suggest making permanent changes in your eating and exercise habits?
11. Are you sure that this plan is *not* a get-rich-quick scheme for someone?

Yes answers to all questions may indicate a good weight control plan.

STUDENT

Dear Dr. Diet

Directions: Read each of the following letters. Work with your group to give advice based on what you've learned about nutrition.

Dear Dr Diet:

I am on the wrestling team at a weight 10 pounds less than what I normally weigh. What can I do to make my weight before each weigh in?

The Hungry Wrestler

Dear Dr. Diet:

My sister tries to lose weight by starving for days. what can I do to stop her from doing this?

The Sister of the Starver

STUDENT

Dear Dr. Diet

One of my friends gains weight all through the year. When he has gained too much weight or has a special activity planned, he starts a diet contest with one of his friends. He has asked me to help him with his weight loss this year. What should I tell him?

The Friend

Dear Dr. Diet,

My brother is always buying the latest books on easy ways to lose weight. What should I say to him to help him choose a good weight loss plan?

Concerned Sister

STUDENT

Dear Dr. Diet:

One of my friends went on a liquid diet she bought at the grocery store. She only got about 500 calories a day from the drinks. She lost weight but she gained it all back when she quit using the liquid diet. Now she is thinking about going back on the liquid diet. She asked me for advice. What should I tell her?

Cautious Cathy

DEAR DR. DIET:

ONE OF MY FRIENDS KEEPS DIETING AND IS GETTING REAL SKINNY BUT SHE STILL THINKS SHE'S FAT! SHOULD I BE WORRIED ABOUT HER?

SKINNY'S FRIEND

LESSON 9

A GOOD NUTRITION PARTY

Objective

Students will be able to synthesize nutritional information for party planning.

Time

One class period.

Overview

One of the toughest parts of the educational process is the transfer of knowledge into positive behavior changes. Behavior changes often require some type of sacrifice that people may not be willing to make. This is particularly true in the area of nutrition. Decisions made to improve food choices may impact relationships with others, ways of rewarding oneself, social interactions and many other things. These may make the process of making long-lasting changes more difficult.

In this lesson, students have an opportunity to apply their knowledge by planning a party that features nutritious snacks.

Instructional Strategies

Brainstorming, cooperative learning groups, worksheets.

Teacher Materials and Preparation

HAVE:

✓ Chalk and Chalkboard.

✓ Paper and art supplies for party menus and invitations (optional).

COPY:

✓ **It's a Party!** worksheet, one for each group.

Procedure

■ Have the class brainstorm some of the important things they have learned about nutrition in this module. List these on the board. Ask students why these are important.

■ Let students self-select into pairs or trios or groups of four to six. Distribute the **It's a Party!** worksheet to each group. Tell groups to plan a party that includes nutritious snacks. Tell students to list on the worksheet the foods they would serve. Groups should then prepare a class presentation that explains why they have chosen these foods.

■ *Optional:* Distribute paper and art supplies to each group. Let students design a menu and invitations for the party. Tell students the menu and invitations should indicate the good nutrition theme of the party, as well as the fun.

Evaluation

Assess student party plans for evidence of nutritional food choices to be offered.

Have students write "I Learned..." statements and rank themselves on their level of participation.

Follow-Up/ Extension

Consider having a simple good nutrition party based on student party plans.

STUDENT

It's a Party!

Directions: With your group, plan a menu for a Good Nutrition Party. List the foods you choose on this worksheet.

APPENDIX

NUTRITIONAL HEALTH PROBLEMS

Although there is an abundant food supply and a wide variety of food choices in the United States, we still have health problems that are associated with poor nutritional choices. Some of the diseases associated with eating too much of the wrong foods include:

Heart Disease and Stroke

Heart disease and stroke are associated with poor blood circulation. Reduced blood supply to the heart may result in a heart attack, while reduced blood supply to the brain may result in a stroke. Blood flow may be reduced if a waxy substance called cholesterol has been deposited in the arteries.

There are individual differences related to heredity and how the body uses cholesterol. Consequently, some people may eat high levels of saturated fat and have normal blood cholesterol. Doctors usually recommend that people reduce their intake of saturated fat to lower an elevated serum cholesterol level.

Most saturated fats come from animal sources. They are usually solid at room temperature. Oils such as coconut oil, palm oil and palm kernel oil are also saturated fats. Other risk factors for heart diseases include smoking and hypertension (high blood pressure).

Some Types of Cancer

Cancer refers to uncontrolled growth of cells. Diets low in fiber might increase the risk of developing cancer of the colon. Cruciferous vegetables, such as broccoli and brussels sprouts, may prevent cancer. Cancer may also be related to increased levels of estrogen in the bloodstream, which is also associated with obesity.

Chronic Obesity

Chronic obesity refers to excess body fat. It can lead to high blood pressure, increased levels of blood fats and cholesterol, and diabetes. All of these are associated with increased risk of heart attacks and strokes.

Tooth Decay

Tooth decay is the major health problem associated with eating too much sugar. The risk is increased when there is a greater frequency of intake of foods containing sugar and when foods are eaten that stick to the teeth, such as caramels, raisins and sugared gum.

Hypertension

Hypertension is defined as sustained high blood pressure. Some of the factors that influence high blood pressure include aging, atherosclerosis, obesity and inactivity. Sodium tends to increase blood pressure; it is a special concern for the 17 percent of adults who have high blood pressure. Since there is no way to predict high blood pressure, low-sodium diets might help some people avoid high blood pressure.

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Into Adolescence: A Menu for Good Health

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ABOUT THE BOOK: *Into Adolescence: A Menu for Good Health* helps middle school students integrate the principles of good nutrition into the food choices they make every day. The nine lessons focus on the benefits of eating a variety of healthy foods, while giving students practical strategies to make their favorite meals and snacks more nutritious. Class presentations involve students in learning the facts about Calories, nutrients and food groups. Students apply this knowledge by investigating the advertising claims and nutritional information of their favorite foods. The final lesson involves planning a "healthy food" party—reinforcing the idea that good nutrition doesn't have to be boring.
A Menu for Good Health:

- provides interesting facts and charts about nutrition
- demystifies food labels—explaining what's really in the food we eat
- offers practical strategies, like switching to low-fat milk and cutting back on fried food, that help middle school students eat better
- helps students analyze weight control/dieting claims

ABOUT THE SERIES: *The Contemporary Health Series* covers critical health and family life topics in a sequence of modules with two curricular divisions: INTO ADOLESCENCE for middle school teachers and ENTERING ADULTHOOD for high school teachers. Each of the modules in a division is compatible with the others but may stand alone. Other INTO ADOLESCENCE titles include: *Living Without Tobacco; Learning About Reproduction and Birth; Making and Keeping Friends; Choosing Abstinence; Avoiding Drugs; Learning About AIDS; Enhancing Self-Esteem; Becoming a Health-Wise Consumer; Communicating Emotions; Living in a Family; A Time of Change; Caring for Our Planet and Our Health;* and *Actions for Wellpower.*

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